

REMARKS

Reconsideration of this application is respectfully requested.

Responsive to the Examiner's restriction requirement applicants have elected claims 1-19 (Invention I) and cancelled claims 20-34 (Invention II) without prejudice. Consultations with applicants revealed that the method for producing the resultant open-porous molded body by coating, shaping and thermally treating it was worth pursuing for expediency rather than getting bogged down in a likely fruitless effort in getting claims 20-34 reinstated. Applicants wish to note, however, that U.S. 6,436,163 does not anticipate the present method for fabricating an open-porous molded body using an intermediate shaping step without breaking an otherwise relatively brittle object nor the resulting product.

In summary, claim 1 has been amended to more fully reflect the novel shaping characteristic of the present coating method to fabricate a normally brittle solid solution or intermetallic body.

We now turn to the rejections. Applicants respectfully traverse all of the rejections.

Claims 1-19 were rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Böhm et al. (WO 03/033192 A2) in view of Witlock (US 6,832,318) for the various reasons given.

At the outset, it should be emphasized that shaping essentially brittle porous bodies coated with solid solution or intermetallic phase materials poses a major problem. In fact, the Examiner acknowledges this on page 5 of the action. "...because the shaping would be much more difficult after the formation of the brittle and hard intermetallic phase on the surface of the porous body during thermal treatments."

Indeed! The thrust of the present invention is to allow efficacious shaping of such products – which as far applicants are aware – is not known.

With all due respect, it is unclear to applicants how '318 is relevant to the present invention.

'318 refers to the production of a radial-type filter for use in underground wells and the like, in which the filter body is restrained by a "cage" to prevent damage to the filter body by radically outward forces encountered during operation of the filter. The filter material is typically a metal or polymer; materials that would be expected to have the ability to be wound to the desired diameter without damaging the filtration structure. Supported sintered metallic-particulate filters are also cited in passing. These retain their filtration integrity even when the structure is significantly deformed. The "cage" around the outside of the filter acts as a restraint against internal forces arising during operation (i.e. pressure reversals).

The ductility of the filter material, which would allow the winding to be carried out easily, results in a reduced stiffness, thereby requiring the supporting "cage" structure. If a much stiffer filter material could be formed at the same radius of curvature, the use of such a complex support design may not be required. The use of intermetallic material is not envisioned in '318.

'318 does not deal with the production of open-porous bodies. It presupposes that a suitable filter for '318 is available but it does not by any stretch of the imagination disclose or suggest a method for shaping and coating porous products.

WO '192 describes a somewhat similar method of making the intermetallic foam from a starting nickel foam, with the absolutely critical and novel exception of the introduction of a forming operation before the heat treating steps. In WO '192 the sintering operation is carried out on powder coated sheets of the metallic foam to create the aluminide foam. As Dr. Böhm (an inventor of WO '192 and the present invention) advises, control of the heating operation is not easy as the aluminide foam reaction is highly exothermic, but it can be managed by careful adjustment of the furnace parameters. The filter production operation must result in the preparation of a porous structure with a small variability from region to region, in order to allow proper control of the filtration operation.

In contrast, in the shapes envisioned by the present invention, thermal control of the operation is much more difficult and it was not obvious that the control of heat transfer in and out of the porous body could be properly managed without the generation of internal hot spots that could result in localized deformation of the pore structure. In the case of the porous body made by winding the sheet material, a relatively large amount of heat is evolved in regions with only small amounts of solid material (i.e. due to the high porosity of the foam material), resulting in a greater risk of a large and rapid temperature rise, which could cause deformation of the structure. Differences in the structure and material could easily arise between the inside and outside of the body during the sintering operation if it is not properly carried out. Accordingly, the present process was developed to permit forming and shaping within the method.

It should be noted that the present invention allows for the formation of a completely reacted body in which the only phase present is the aluminide or the preparation of a body with only a surface layer of aluminide. In many cases, complete reaction is preferred to avoid the possibility of material failure resulting from surface cracking or spallation of the surface layer. A reduction in the amount of powder added to the surface could alleviate the heat transfer problem somewhat but this is not possible when the target is full transformation to the aluminide.

Applicants respectfully maintain the combination of US '318 and WO '192 does not render the invention obvious to one skilled in the art. U.S. '318 discloses a complex concentric filter design. How this relates to the present coating and shaping process is unknown. Regarding WO '192, as the Examiner himself notes on Page 4 of the action, it "do[es] not teach the shaping step as claimed". Since the cited apparatus patent is irrelevant and the cited method patent does not disclose shaping, how has obviousness been shown?

(During the pendency of this action, the ground recently shifted regarding 35 U.S.C. 103. The Supreme Court's recent decision in KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007) raises more questions [at least to this old time practitioner] than it answers. In spite of the recent USPTO announcement, at least the now reduced "teaching, suggestion, motivation" ("TSM") test was a standard (perhaps a bit vague but a standard

nonetheless) that inventors, examiners, agents, attorneys and judges could hang their hats on and argue about. Now under KSR, “common sense” is cited several times in the opinion and the Graham test has been re-elevated. Let’s face it, obviousness is a subjective test that reasonable people may disagree about. Until the dust settles, and minds smarter than undersigned’s arrive at some new consensus, we are concerned that obviousness or unobviousness may be likened to pornography. Another vague standard set by the Supreme Court – “I know it when I see it”. Frankly, it is unclear at this point whether KSR, ruling on an essentially electro-mechanical combination, helps or hinders our respective jobs and encourages or discourages innovation [most likely the latter]. Nonetheless, we must all soldier on.)

Applicants are of the view that once the Examiner is willing to reconsider his rejection of claim 1, the remaining claims are also patentable since they depend from a patentable independent claim. Nothing in either cited references, when combined, disallows the subsequent claims.

Applicants wish to note in passing that U.S. ‘163, while dealing with sintered iron aluminide particle filter compositions, does not anticipate the present fabricating and shaping invention.

Applicants respectfully submit that the cited references, even if considered in a forbidden pick and choose fashion or viewed in the improper afterglow of hindsight, do not anticipate or, dare we say it, suggest the present invention. There is nothing predictable in combining the cited references since there is no appreciation of shaping brittle open-porous molded bodies. U.S. ‘318 relates to a separate art–filter construction. Although WO ‘192 and the present invention both relate to the foam universe, the present claims were not even a gleam in the eye of one skilled in the art.

Accordingly, the Examiner is urged to please reconsider the rejection and this response thereto. In the event the Examiner believes after consideration of this response that

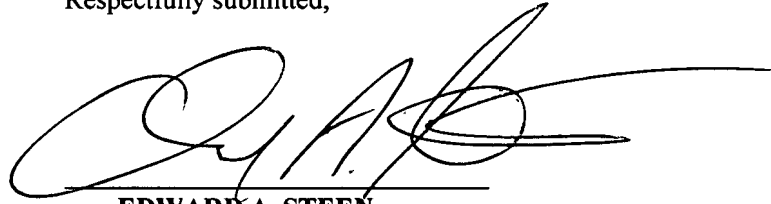
U.S.S.N. 10/521,082
Naumann, et al.

the prosecution may be expedited by an interview with an authorized representative of the applicants, the Examiner is invited to contact the undersigned at (201) 328-4853.

Respectfully submitted,

6/13/07

DATE

A handwritten signature in black ink, appearing to read 'E.A. Steen', written over a horizontal line.

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